



INSTALLATION, OPERATING and SERVICE MANUAL

THE INSTALLATION OF THE UNIT SHALL BE IN ACCORDANCE WITH THE
REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION.

SVS BALANCED FLUE SEALED VENTING SYSTEM

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NOTICE TO HOMEOWNER: READ AND SAVE THESE INSTRUCTIONS



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SVS BALANCED FLUE SEALED VENTING SYSTEM

Note – Some appliances are not yet available with the SVS system – check with your supplier

ATTENTION HOMEOWNER

- Keep the outside wall terminal area free of ice, snow, debris and vegetation so flue gas can disperse. Keep children away from the outside terminal area.
- If the burner, appliance, or vent system fails to operate at any time, call a qualified burner service technician.
- Do not tamper with the vent system, the appliance or the controls.
- Have a technician check the complete operation of the heating appliance and the vent system at least once a year.

ATTENTION INSTALLER/TECHNICIAN

- A smoke tester and a combustion gas analyser are required for the correct set-up of the Newmac balanced flue sealed vent system. For your safety read and save all instructions, operating and service manuals.
- The installer/technician must ensure that the appliance, burner and the vent system are set up and installed to code and according to these instructions. Ensure that the system is sealed and free of leaks. Use the 600°F silicone sealant supplied.
- The Newmac SVS Sealed Vent System is certified for use with those Newmac appliances that indicate approval for its use.
- Ensure that the outside terminal is at least 1 ft above the highest anticipated snow level.
- Use only flexible vent pipe, parts and fittings specified and supplied with the Newmac SVS system.
- Maintain a 1" clearance from one side of the insulated flexible vent pipe to combustible materials and a 6" clearance on the other side. Do not box in the flexible vent pipe.
- Read all the instructions thoroughly before installing or starting the burner.
- Ensure that all components, fittings, covers and doors are in place before starting.
- Install the SVS vent system and the appliance in accordance with the requirements of the authorities having jurisdiction (in the USA: NFPA 31, in Canada: CSA B139, Installation Code for Oil Burning Equipment).

NEWMAC SVS SYSTEM CONSISTS OF

TERMINAL AND CONTROL KIT PACKAGE	1
SVS ADAPTOR KIT SUITABLE FOR APPLIANCE	1
FLEXIBLE VENT PIPE OF DIAMETER SUITABLE FOR APPLIANCE	CHOICE OF LENGTH
FLEXIBLE AIR DUCT OF DIAMETER SUITABLE FOR APPLIANCE	CHOICE OF LENGTH
NEWMAC LISTED SVS APPLIANCE WITH POST PURGE BURNER	1

For detailed information - See parts lists

INSTALLATION SUMMARY

- Install to code
- Check that the Newmac appliance is certified for SVS sealed vent operation
- Check that the flex vent pipe diameter is suitable - see the flex vent pipe assembly instructions
- Select the vent terminal location, check inside and outside requirements
- Keep the flex vent pipe length short; remember the 12" minimum radius. Do not box it in.
- Select an appliance location close to the vent terminal
- Ensure that there is sufficient ventilation air for cooling the appliance area - see the installation code
- Install the terminal - see diagram
- Install the flex vent pipe from the terminal to the appliance
- Seal the burner flange to the air tube if required and install the burner on the appliance
- Set the burner insertion and post purge time (Recommended: 2 minutes Beckett/Carlin, 1 minute Riello)
- Install the burner, control kit and pressure switch
- Connect the flex air duct and seal it
- Complete the wiring using the cables in the control kit
- Set up the burner as described in the BURNER section of this manual
- Check the operation of the pressure switch and pressure test the flex vent pipe
- Ensure that all gaskets, joints and covers are secure and sealed
- Check that all components are secure
- Explain the terminal outside maintenance and safety to the homeowner

SVS FEATURES

SVS SEALED VENT SYSTEM

- The SVS balanced flue sealed system exhausts all flue gases and provides all burner combustion air through a single wall terminal. It balances wind pressure variations to provide a stable operating environment for the burner.
- The O-ring band clamp flex vent pipe connections permit inspection and cleaning as required by the installation codes.
- The pressure switch is designed to prevent the burner from starting if flue gas outlet or combustion air inlet is blocked.
- The sealed burner has combustion air pre-purge and post-purge. The post-purge time is adjustable.
- No vacuum relief valve nor inside burner air should be installed.

TERMINAL

The balanced flue sealed vent terminal is a zero clearance one-piece terminal, which mounts through the wall. It exhausts the products of combustion away from the building and supplies all the burner air from outside.

FLEX VENT PIPE/AIR DUCT KIT (20 ft maximum length see note below)

The SVS kit contains flue gas vent and air duct components for connecting the appliance to the terminal. Cut the flexible vent pipe to length and assemble the pipe and adaptors according to the instructions. Use only the 600°F RTV sealant provided. The diameters of the flex vent pipe and air ducts are sized according to the appliance - see SVS SYSTEM AS SUPPLIED FOR each appliance, page 12 and on. The flex vent pipe and adaptors are not interchangeable between vent pipe manufacturers. Use pipe and adaptors from same manufacturer only.

NOTE: The maximum SVS length for the NV3 oil-fired furnace with the Beckett AFG burner firing at 1.50 USGPH is 15 ft.

CONTROL KIT

The control kit provides the wiring cables, pressure switch tubes and pressure switch for installation on the appliance for the operation of the SVS system.

INSTALLATION - GENERAL

INSTALL TO CODE

In the USA install the appliance to the Installation of Oil Burning Equipment, NFPA 31 Code and the National Electrical Code NFPA 70. In Canada install to the Installation Code for Oil Burning Equipment, CSA B139 and the Canadian Electrical Code. Use only fittings supplied with the Newmac SVS system. Follow requirements of authority having jurisdiction. The SVS system is listed and certified by the Canadian Standards Association certification agency to US and Canadian requirements.

NEWMAC SVS CERTIFIED APPLIANCES

Ensure that the Newmac appliance model is certified for use with the SVS system. Models approved for use with the SVS have V as the last digit in their model number – for example, NBR-121V. The approved appliance operates with positive over fire pressure.

TERMINAL LOCATION See figure 12

Select a location for the vent terminal that conforms to the SVS exterior installation requirements listed below, is close to the appliance location and conforms to the local installation codes. The clearances to combustibles and the flexible vent pipe must be sufficient for access and servicing.

UNACCEPTABLE TERMINAL LOCATIONS (US AND CANADA) See figure 12

The terminal shall not be placed in the following locations:

- Directly above a paved sidewalk or a paved driveway that is located between two buildings, and that serves both buildings;
- less than 7ft (2.13m) above any paved sidewalk or any paved driveway;
- within 6ft (1.8m) of any operable window, door or mechanical air supply inlet to any building, including soffit openings;
- above a gas meter/regulator assembly within 3ft (1m) horizontally of the vertical centre-line of the regulator on a horizontal plane perpendicular to the regulator;
- within 6ft (1.8m) of any gas service regulator vent outlet or within 3ft (1m) of an oil tank vent or an oil tank fill inlet;
- less than 1 ft (0.3m) above grade level;
- within 6ft (1.8m) of the property line;
- underneath a veranda, porch or deck;
- so that the flue gases are directed at combustible material or any openings of surrounding buildings within 6ft (1.8m);
- less than 3ft (1m) from the inside corner of an L-shaped structure;
- so that the bottom of the vent termination opening is less than 1ft (0.3m) above any surface that may support snow, ice or debris;
- so that the flue gases are directed towards brickwork, siding, or other construction, in such a manner that may cause damage from heat or condensate from the flue gases.

TERMINAL CONNECTIONS - VENT PIPE

Select the terminal and appliance location to give a short vent pipe length. Ensure that the required clearances to combustibles can be maintained. Do not box in the flexible vent pipe.

TERMINAL CONNECTIONS - AIR DUCT

Air is provided to the burner by the burner air duct, which runs from the terminal to the burner. The air duct can be attached on either side or on the underside of the terminal.

APPLIANCE LOCATION

Select an appliance location close to the proposed terminal location to ensure a short vent pipe length.

VENTILATION AIR

Normal ambient temperatures must be maintained around the appliance - see installation codes - USA: NFPA31, Canada: B139 - and the appliance instructions. For an appliance installed in a confined location, two ventilation air openings, must be provided from either within the building or from outside. Any outside ventilation air openings must be at a sufficient distance from the terminal -see UNACCEPTABLE OUTSIDE TERMINAL LOCATIONS above.

TERMINAL INSTALLATION

See figures 1, 2, and 3

- **CHECK THE LOCATION** – Ensure that the proposed terminal position complies with these instructions and the installation codes.
- **CUT A 7" x 7" HOLE THROUGH THE WALL** - If required cut 12¼ x 12¼ inch clearance recess in the siding. The terminal head can be recessed up to 1" in siding. Ensure that the terminal combustion air slots are not obstructed by the siding or caulking.
- **SELECT THE AIR DUCT BOX POSITION AND REMOVE IT FOR INSERTION** - Remove air duct box for insertion. Install the covers on the unused air duct openings.
- **FROM OUTSIDE, SLIDE THE TERMINAL THROUGH THE WALL** - Ensure that the terminal head is mounted top side up so that water or condensate in side it can drain to the outside. The horizontal terminal ducts are set at an angle to allow for drainage to the outside. The terminal has "TOP" marked.
- **SECURE THE TERMINAL HEAD TO THE WALL AND CAULK THE SIDING** - Remove the external 1/4" screen and screw the terminal to the wall using screws provided. Replace the screen.
- **INSTALL THE INSIDE COVER PLATE AND SEAL IT TO THE INSIDE WALL** - If required cover the inside wall and seal the opening around the terminal with the cover plate.
- **REPLACE THE AIR DUCT BOX** - Re-install the air duct box in the position required.

FLEX VENT PIPE INSTALLATION

See figures 7 and 8

- **FLEX VENT PIPE** - Follow the flex vent assembly instructions, below. The flex vent pipe must be installed in one continuous length. Do not splice, join or puncture the pipe. For a proper fit use only flex vent pipe and adaptors from same manufacturer. Keep the vent pipe length as short as possible.
- **INSTALL THE TERMINAL ADAPTOR ON THE FLEX VENT PIPE** - Install the 3" terminal vent adaptor on the flex vent pipe. Use only 600°F RTV sealant provided - see the flex vent pipe assembly instructions in this manual.
- **ATTACH THE ADAPTOR TO TERMINAL** - See the flex vent pipe assembly instructions in this manual. Ensure that the O-ring contact surfaces are clean. Loosen the band clamp and slide it onto the pipe. Place the 3" O-ring in place on the terminal and slide the flex vent adaptor onto the terminal pipe. Place the band clamp over the O-ring and both rolled pipe beads. Using a 5/16" nut driver, carefully tighten the clamp screw so that the clamp grips the joint and the seal. Do not over-tighten. See the flex vent pipe assembly instructions in this manual.
- **INSTALL THE ADAPTOR SHIELD FOR A 1" CLEARANCE TO COMBUSTIBLES** – The connection shield is required where less than 9" clearance to combustibles is available at vent pipe connection to the terminal. For a 1" clearance to combustibles, install the adaptor shield as shown in the terminal installation diagram – see figure 3.
- **SET THE FLEX VENT PIPE IN POSITION AND SECURE** - Maintain a 1" clearance to combustibles, and ventilation. Do not box in the vent pipe. The minimum inside bend radius is 12". Use non-combustible supports at least every 3 feet.
- **CUT THE FLEX VENT PIPE TO LENGTH** - Allow a few inches extra for tolerance. Carefully cut the flex vent with a hacksaw. For easier connection, push back the outer aluminum cover 1/2" to 3/4" to reveal the stainless inner liner. Use appropriate safety precautions and protection: the thin metal edges are sharp.

- **INSTALL THE BREECH ADAPTOR ON THE FLEX VENT PIPE** - Install the appliance breech adaptor on the flex vent pipe. Use only the 600°F RTV sealant provided. See the flex vent pipe assembly instructions in this manual.
- **FLEX VENT PIPE ADAPTOR CLEARANCE TO COMBUSTIBLES** - Maintain the appliance and 9" single wall flex vent pipe adaptor clearances to combustibles where the vent pipe is not shielded. The 1" clearance for the double wall flex vent starts 9" from single wall part of the breech adaptor.
- **ATTACH TO THE APPLIANCE BREECH** - See the flex vent pipe assembly instructions in this manual. Clean the breech pipe if necessary. Apply a bead of 600°F sealant round the breech pipe, loosen the breech pipe gear clamp and slide the adaptor over the breech pipe. Using a 5/16" nut driver, carefully tighten the clamp screw so that the joint and seal are snug. Do not over-tighten. No barometric damper should be installed.

FLEX AIR DUCT INSTALLATION

See figures 1, 2, 3, and 4

- **INSTALL THE GREEN BURNER AIR COLLAR** - Set the air collar on the burner air inlet with the pressure switch tube tapping point facing towards pressure switch. Screw the air collar securely to the burner. Seal the air collar to the burner and the air adaptor with tape. Note: Both a 3" straight (Riello) and a 4" tapered (Beckett or Carlin) green air collars are supplied. The taper is to adapt from the Airboot to the flex air duct.
- **FLEX AIR DUCT** - Use the twin ply single wall aluminium flex vent supplied. Use the specified diameter - smaller diameters may starve burner of air. Use a continuous length of flex air duct from the terminal to the burner air inlet. Use the adaptor provided in the kit for the burner air connection (the 5"x4" galvanized adaptor is packaged with the Beckett or Carlin burner). Install the air duct and support it at least every 3 feet. Avoid tight bends – the minimum bend radius is 1 foot. Repair any damage to the duct, as this would affect the seal. Use the aluminum tape provided or gear clamps at joints. Do not install a vacuum relief valve or barometric. Note: The flex air duct is *durable* to avoid puncturing, and *non-combustible* so that it can be installed within the required clearance to combustibles.

CONTROL KIT AND PRESSURE SWITCH INSTALLATION

See figures 1, 2, 4, and 6

- **INSTALL THE PRESSURE SWITCH BOX - SEE INSTALLATION DIAGRAM** - Install the pressure switch box at least 8 ins above the height of the top of the breech pipe, to allow for any condensation in the copper tube to drain back to the breech.
- **FOR A FURNACE:** Screw the box upright to the front or side of the supply plenum at least 8 ins above the breech pipe, close to a corner to minimize vibration.
- **FOR A BOILER:** Keep the box upright and screw to the upper part of the boiler coil casing.
- **CHECK THE BREECH "T" TAP** - Ensure that the breech "T" tap is installed and sealed in the top of breech adaptor. The "T" tap side connection is for the pressure switch tube to the pressure switch. The plugged top is the smoke test and combustion analyser test point.
- **CHECK THE BURNER AIR COLLAR** - Set the collar on the burner air inlet with the pressure switch tubes tapping point facing towards pressure switch. The air collar should be securely attached and sealed to the burner.
- **INSTALL THE PRESSURE SWITCH TUBES** - Keep the pressure switch tubes coiled for compactness - **DO NOT SHORTEN OR CUT THEM.** Connect the burner air collar tap to the low pressure "BURNER" side of the pressure switch and breech "T" tap to the high pressure "BREECH" side of the pressure switch. Ensure that the breech tubing slopes away from the pressure switch towards the breech to allow any condensation to drain back to the breech. Do not over-tighten the nuts or the tube wall and the seal may be damaged.

ELECTRICAL WIRING

See figures 9, 10, and 11

- COMPLETE THE ELECTRICAL WIRING TO CODE - See the wiring diagram for appliance/burner combination. The control kit contains all the necessary cables for wiring the appliance with the sealed vent burner and the pressure switch.
- See NMP multi-position furnace installation manual for NMP SVS wiring

FLEX VENT PIPE ASSEMBLY INSTRUCTIONS

See figures 7, and 8

Oil flex vent pipe adaptors must be correctly installed. For your safety read and save all instructions, operating and service manuals.

SVS OIL FLEX VENT PIPE SYSTEM - see figures 7, and 8

- The oil flex vent connection consists of:
 - Terminal with adaptor and band clamp
 - Insulated flex vent pipe up to 20 feet long (max)
 - Appliance and adaptor band clamp
- The insulated flexible vent pipe must be continuous and in one piece.
- Adaptors are installed at each end – the terminal and the appliance end - and sealed to the inside pipe with 600°F sealant.
- Care must be taken to ensure that the adaptors seal to the inside pipe. They should not be sealed to the outside pipe
- The O-rings and band clamps facilitate opening for inspection and cleaning as required by code
- Newmac appliances are certified for use with flex vent pipe up to 20 feet long. The insulated pipe should be supported at least every 36".
- The minimum bend radius is 1 foot.

ASSEMBLE THE FLEX VENT PIPE IN PLACE

Put the terminal adaptor onto the pipe system first, and then to establish the length, put the flex vent pipe in place with non-combustible supports every 3 ft as recommended. Use wide bends greater than 1 ft radius. Cut the flex vent pipe to length at the appliance breech when the final position is established. This will help ensure that you have a sufficient length. Once the 600°F sealant has set, the adaptors cannot be removed from flex vent pipe. The O-ring seals and clamps can then be used for opening the joints.

TERMINAL AND BREECH ADAPTOR ASSEMBLY – See figures 7, and 8

- Push the outer casing back to bare 1/2 to 3/4" of the inner pipe
- Remove the securing screw and outer sleeve.
- Align the flat seams of inner pipe and adaptor to check complete screw fit. Engage the screw action COUNTER-CLOCKWISE.
- Check the screw fit. It will turn easily when the profiles are properly aligned.
- Unscrew the fitting part way and apply a generous bead of 600°F Loctite Ultra Copper sealant Newmac Part no. 2080072.
- Slowly engage and screw the adaptor COUNTER-CLOCKWISE into the flex vent inner pipe. Ensure that the sealant bead is maintained. Continue to screw until the adaptor tightens into the pipe.
- Replace the outer sleeve and tighten the securing screw.
- Tighten the outer casing with the gear clamp. Do not deform the vent casing.

CUT TO LENGTH

- Put the flex vent pipe in place. Select the cut-off point. Take care not to cut it too short, as the flex vent pipe must not be joined. Do not puncture inner pipe.
- Cut the pipe (both pipe and sleeve) with a hacksaw or tin snips. Use appropriate safety precautions. The thin metals are sharp.
- Assemble and install the breech adaptor in a similar way to the terminal adaptor, as described above.

O-RING BAND CLAMP ASSEMBLY See figure 8

The breech and terminal O-ring adaptor assemblies are similar.

- Ensure the O-ring contact surfaces are clean
- Loosen the band clamp and slide it on to the pipe
- Place the O-ring on the pipe end
- Slide the adaptor into place on pipe
- Expand band clamp over O-ring and both pipe beads
- Using 5/16" nut driver, carefully tighten clamp screw so that joint, seal, and band are snug. Do not over-tighten.

BURNER

BECKETT AFG, CARLIN BURNER

Check that the burner supplied includes a pre- and post-purge oil pump and burner control and the Field Controls AIRBOOT and is suitable for the appliance model (See appliance instruction manual). Set the burner post purge time to 2 minutes. The all-welded flange should not require sealing to the air tube

RIELLO BF BURNER

Check that the BF burner model supplied is suitable for the appliance model. Some Riello BF series burners have different post purge control requirements for boilers and furnaces. Follow the appliance and burner manufacturer's assembly and installation instructions. Check that the burner post-purge time runs for 1 minute (factory setting). See the appliance instructions for the required burner insertion. Seal the burner flange to the blast tube (on the gasket side) with some 600°F sealant.

BURNER SETTINGS IMPORTANT

Mount the burner to the appliance with 4 burner studs.

Make final adjustments to the burner combustion air only when the burner cover (Riello), vent system and the burner air duct are in place and sealed. The burner air setting will be higher than for a chimney vented appliance. It provides the airflow necessary to maintain a zero smoke and exhaust the flue gases through the SVS system. The turbulator 'Z' dimension is set the same as for a chimney vented appliance. For proper set-up Newmac requires the use of a combustion gas analyser to measure % of O₂, oxygen or % of CO₂, carbon dioxide. NOTE - DO NOT USE ANY VACUUM RELIEF VALVE IN BURNER AIR SUPPLY.

BURNER SET-UP - USE A COMBUSTION ANALYSER

- Set the burner post purge to 1 minute (Riello) or 2 minutes (Beckett and Carlin) - see the burner manual for the procedure.
- Set the INITIAL BURNER AIR SETTING to that shown in the table below.
- Operate the appliance for 5 minutes or until it is warm.
- Take smoke readings with a smoke tester at the breech test point.
- Adjust the burner air to get a Bacharach #1 smoke reading as a setting reference.
- Measure the O₂% or CO₂% of the combustion gases at the appliance breech for the #1 smoke.
- Increase the burner air rate so that the CO₂% reduces by 1 to 1.5% or the O₂% increases by 1.5 to 2% over that indicated for the #1 smoke. The smoke test should now be zero.
- Lock the air damper to hold the air setting.
- Replace the appliance breech test point plug.

BURNER POST PURGE TIMER SETTINGS - SEE BURNER INSTRUCTION MANUAL

Beckett AFG	2 minutes
Riello BF3, BF5	1 minute
Carlin EZ-1	2 minutes

INITIAL BURNER AIR SETTING - ALL VENT LENGTHS

USGPH Flow	AIRBOOT Initial Setting		Riello BF5 Initial Air Setting	Riello BF3 Initial Air Setting
	Beckett AFG	Carlin EZ-1		
1.50	220	-	-	-
1.35	-	50	8	-
1.25	150	40	6.5	-
1.00	100	30	5.1	-
0.90	80	25	4.8	8
0.80	60	20	4.1	6
0.70	65*	15	3.9	5
0.60	65*	15	-	4.1
0.50	65*	-	-	3.8

*Indicates the AIRBOOT Flow Restrictor in place. Follow BURNER SET-UP above for final air setting

PRESSURE SWITCH AND VENT PIPE PRESSURE TEST

The pressure switch (set at 0.75 ins wc) prevents the burner from firing if a blockage occurs. A partial blockage will prevent the burner from firing at the next call for heat. A severe blockage can stop the burner from firing immediately. The pressure switch operation may be impaired if the flex air duct is damaged.

PRESSURE SWITCH TEST

To check the operation of the pressure switch, see if the burner will light with the air duct or the vent temporarily blocked. The pressure switch should activate and prevent the burner from igniting.

VENT PIPE PRESSURE TEST

With the vent pipe temporarily blocked outside at the terminal, the burner post purge should remain running with no fire. While the vent system is cool, the joints may be pressure tested for leakage with dilute soapy water.

FLEX VENT CLEANING AND INSPECTION

The O-ring band clamps may be opened for flex vent pipe inspection and cleaning. Ensure that the O-ring is complete, retains its elasticity and is not damaged. For proper seal use only Newmac rings and band clamps. O-ring part numbers are shown on the SVS assembly diagram. Ensure that the surfaces, which are sealed by the O-rings, are clean and smooth.

SVS SYSTEM SPECIFICATIONS

CLEARANCES TO COMBUSTIBLES TERMINAL

Through wall	Terminal to flex vent pipe adaptor, Shielded with supplied adaptor shield	Terminal to flex vent pipe adaptor, unshielded
Zero	Top and one side: 1". Other side: 6"	9" all round

CLEARANCES TO COMBUSTIBLES FLEXIBLE VENT PIPE

One side: 1"	Other side: 6"	Surrounding space must be ventilated - Do not box in
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GENERAL

TERMINAL SPECIFICATIONS

Through-the wall hole opening size	7"x 7"
Siding recess for head	12-1/4" x 12-1/4"
Maximum siding recess depth	1"
Maximum height from appliance breech	10 feet
Minimum height from appliance breech	zero

OIL FLEX VENT

Maximum length (see Flexvent note for NV3, page 3)	20ft
Minimum length	-
Minimum inside bend radius	1ft
Minimum support spacing	3ft
Minimum gradient	1/4" per foot toward breech

Sealant - Loctite Ultra Copper 600°F RTV silicone, part 2080072

MAXIMUM WALL THICKNESS (excluding siding)

Standard Terminal part number 4160159	10"
Extended Terminal part number 4160116	24"

FLEX VENT PIPE AND AIR DUCT DIAMETERS

Appliance	Flex vent pipe diameter	Twin ply air duct diameter
LFR, oil fired furnace	3 inch	4 inch
NBR oil fired boiler NV2 and NMP oil fired furnaces	4 inch	5 inch
NV3 oil fired furnace	5 inch	

FLEX VENT O-RING PART NUMBERS

Part Number	Appliance	Diameter
2080074	All appliances terminal to flex vent (232V)	3 inch
2080076	Breech – LFR oil fired furnace (239V)	4 inch
2080075	Breech – NBR boiler, NV2, NV3 and NMP oil fired furnaces (246V)	5 inch

SVS APPLIANCE BURNERS

Note: All burners include pre- and post-purge

Appliance		Beckett AFG See table below for additional parts included with burner			Carlin EZ-1		Riello BF3 or BF5			
		Model w/pp	Beckett code	Newmac part number	Model w/pp	Newmac part number	Model w/pp	pre/post purge module	Blast Tube	Newmac part number
Boiler	NBR	AFG70MB(SS) AFG70MD(SS)	NM803 NM804	2110051 2110052	EZ-1	2110165	BF3 BF5	Yes	6" 6"	5400008PP 5400009PP
Furnace	LFR	AFG70MM(SS)	NM702	2110146			BF3	Yes	6"	5400011PP
	NV2	AFG AF81 WPHS(SS)	NM505	2110167	EZ-1	2110159	BF3	Yes	10"	5400016PP
	NV3	AFG AF81 YYHS(SS)	NM506	2110177	EZ-1	2110176	BF5	Yes	10"	5400019PP
	NMP	AFG AF60 YHHS(SS)	NM507	2110122			BF3	Yes	6"	5400020PP

Models marked (SS) are supplied with stainless steel blast tubes

BECKETT OR CARLIN BURNER ADDITIONAL SVS PARTS

Included in burner box

APPLIANCE	BI oil line elbow Part 2190081	5" x 4" galvanized adaptor (air duct to burner) Part 2050026
NBR	Yes	Yes
LFR	Yes	No
NV2	Yes	Yes
NV3	Yes	Yes
NMP	Yes	Yes

SVS SYSTEM FOR LFR FURNACE

Part Number	Description	Terminal Assembly Part Number	
		5240005	5240015
		Number	
<i>4160105</i>	<i>Standard Terminal Package - see page 17</i>	1	
<i>4160117</i>	<i>Extended Terminal Package - see page 17</i>		1
<i>4160109</i>	<i>SVS Adaptor Kit for LFR see below</i>	1	1
2050039	Oil Flex Vent Pipe, 3" x 10' (NM3FV10)		
2050041	Oil Flex Vent Pipe, 3" x 15' (NM3FV15)		
2050065	Oil Flex Vent Pipe, 3" x 20' (NM3FV20)		
2050037	Oil Flex Vent Pipe, 3" x 25' (NM3FV25)		
2050040	Air Duct, 4" x 10' (NM4AD10)		
2050042	Air Duct, 4" x 15' (NM4AD15)		
2050066	Air Duct, 4" x 20' (NM4AD20)		
2050038	Air Duct, 4" x 25' (NM4AD25)		

4160109 SVS ADAPTOR KIT FOR LFR

Part Number	Description	Number
3070009	6' aluminum adhesive tape (air duct)	1
2080072	85gr tube of 600°F silicone sealant (flex vent)	1
2050043	4" x 3" galvanized adaptor (air duct to Riello Burner) (NM4A3)	1
2050022	3" galvanized adjustable elbow (air duct optional)	1
<i>4160108</i>	<i>3 flex vent to 4 breech adaptor with pressure switch connection see below</i>	1
2080074	2-3/4" x 1/8" O-ring, viton (flex vent terminal seal)	1
2050031	3" band clamp (flex vent terminal) (NM3T)	1
2050044	3" flex vent to 3" terminal adaptor (flex vent) (NM3F3T)	1

4160108 3 FLEX VENT TO 4 BREECH ADAPTOR ASSEMBLY FOR LFR

Part Number	Description	Number
2050045	Appliance Breech-pipe Adaptor (NM4AB)	1
2050046	4" Band clamp (NM4B)	1
2050047	SVS breech adaptor (NM3F4B)	1
2080076	Viton O-ring #239V	1
2190078	Plug, 1/8", brass	1
2190079	Locknut, 1/8", brass (if used)	1
2190080	Street T fitting complete, 1/8", brass (if used)	1

SVS SYSTEM FOR NV2 FURNACE

Part Number	Description	Terminal Assembly Part Number	
		5240006	5240016
		Number	
4160105	<i>Standard Terminal Package - see page 17</i>	1	
4160117	<i>Extended Terminal Package - see page 17</i>		1
4160111	<i>SVS Adaptor Kit for NV2 see below</i>	1	1
2050034	Oil Flex Vent Pipe, 4" x 10' (NM4FV10)		
2050023	Oil Flex Vent Pipe, 4" x 15' (NM4FV15)		
2050050	Oil Flex Vent Pipe, 4" x 20' (NM4FV20)		
2050027	Oil Flex Vent Pipe, 4" x 25' (NM4FV25)		
2050035	Air Duct, 5" x 10' (NM5AD10)		
2050024	Air Duct, 5" x 15' (NM5AD15)		
2050051	Air Duct, 5" x 20' (NM5AD20)		
2050028	Air Duct, 5" x 25' (NM5AD25)		

4160111 SVS ADAPTOR KIT FOR NV2

Part Number	Description	Number
3070009	6' aluminum adhesive tape (air duct)	1
2080072	85gr tube of 600°F silicone sealant (flex vent)	1
2050025	5" x 3" galvanized adaptor (air duct to Riello Burner) (NM5A3)	1
2050026	5" x 4" galvanized adaptor (air duct to terminal) NM5A4)	1
4160110	<i>4 flex vent to 6 breech adaptor with pressure switch connection see below</i>	1
2080074	2-3/4" x 1/8" O-ring, viton (flex vent terminal seal)	1
2050031	3" band clamp (flex vent terminal) (NM3T)	1
2050030	4" flex vent to 3" terminal adaptor (flex vent) (NM4F3T)	1
4100125	Mounting screws for pressure switch and bracket	1
4110211	Pressure switch mounting bracket (optional)	1

4160110 4 FLEX VENT TO 6 BREECH ADAPTOR ASSEMBLY FOR NV2

Part Number	Description	Number
2050056	Appliance Breech-pipe Adaptor (NM56AB)	1
2050032	5" Band clamp (NM5B)	1
2050033	SVS breech adaptor (NM4F5B)	1
2080075	Viton O-ring #246V	1
2190078	Plug, 1/8", brass	1
2190079	Locknut, 1/8", brass (if used)	1
2190080	Street T fitting complete, 1/8", brass (if used)	1

SVS SYSTEM FOR NV3 FURNACE

Part Number	Description	Terminal Assembly Part Number	
		5240007	5240017
		Number	
4160105	<i>Standard Terminal Package - see page 17</i>	1	
4160117	<i>Extended Terminal Package - see page 17</i>		1
4160113	<i>SVS Adaptor Kit for NV3 see below</i>	1	1
2050064	Oil Flex Vent Pipe, 5" x 10' (NM5FV10)		
2050063	Oil Flex Vent Pipe, 5" x 15' (NM5FV15)		
2050062	Oil Flex Vent Pipe, 5" x 20' (NM5FV20)		
2050061	Oil Flex Vent Pipe, 5" x 25' (NM5FV25)		
2050035	Air Duct, 5" x 10' (NM5AD10)		
2050024	Air Duct, 5" x 15' (NM5AD15)		
2050051	Air Duct, 5" x 20' (NM5AD20)		
2050028	Air Duct, 5" x 25' (NM5AD25)		

4160113 SVS ADAPTOR KIT FOR NV3

Part Number	Description	Number
3070009	6' aluminum adhesive tape (air duct)	1
2080072	85gr tube of 600°F silicone sealant (flex vent)	1
2050025	5" x 3" galvanized adaptor (air duct to Riello Burner) (NM5A3)	1
2050026	5" x 4" galvanized adaptor (air duct to terminal) (NM5A4)	1
4160112	<i>5 flex vent to 7 breech adaptor with pressure switch connection see below</i>	1
2080074	2-3/4" x 1/8" O-ring, viton (flex vent terminal seal)	1
2050031	3" band clamp (flex vent terminal) (NM3T)	1
2050059	5" flex vent to 3" terminal adaptor (flex vent) (NM5F3T)	1
4100125	Mounting screws for pressure switch and bracket	1
4110211	Pressure switch mounting bracket (optional)	1

4160112 5 FLEX VENT TO 7 BREECH ADAPTOR ASSEMBLY FOR NV3

Part Number	Description	Number
2050060	Appliance Breech-pipe Adaptor (NM57AB)	1
2050032	5" Band clamp (NM5B)	1
2050058	SVS breech adaptor (NM5F5B)	1
2080075	Viton O-ring #246V	1
2190078	Plug, 1/8", brass	1
2190079	Locknut, 1/8", brass (if used)	1
2190080	Street T fitting complete, 1/8", brass (if used)	1

SVS SYSTEM FOR NMP FURNACE

Part Number	Description	Terminal Assembly Part Number	
		5240008	5240018
		Number	
4160105	Standard Terminal Package - see page 17	1	
4160117	Extended Terminal Package - see page 17		1
4160310	SVS Adaptor Kit for NMP see below	1	1
2050034	Oil Flex Vent Pipe, 4" x 10' (NM4FV10)		
2050023	Oil Flex Vent Pipe, 4" x 15' (NM4FV15)		
2050050	Oil Flex Vent Pipe, 4" x 20' (NM4FV20)		
2050027	Oil Flex Vent Pipe, 4" x 25' (NM4FV25)		
2050035	Air Duct, 5" x 10' (NM5AD10)		
2050024	Air Duct, 5" x 15' (NM5AD15)		
2050051	Air Duct, 5" x 20' (NM5AD20)		
2050028	Air Duct, 5" x 25' (NM5AD25)		

4160310 SVS ADAPTOR KIT FOR NMP

Part Number	Description	Number
3070009	6' aluminum adhesive tape (air duct)	1
2080072	85gr tube of 600°F silicone sealant (flex vent)	1
2050025	5" x 3" galvanized adaptor (air duct to Riello Burner) (NM5A3)	1
2050026	5" x 4" galvanized adaptor (air duct to terminal) NM5A4)	1
4160104	4 flex vent to 5 breech adaptor with pressure switch connection see below	1
2080074	2-3/4" x 1/8" O-ring, viton (flex vent terminal seal)	1
2050031	3" band clamp (flex vent terminal) (NM3T)	1
2050030	4" flex vent to 3" terminal adaptor (flex vent) (NM4F3T)	1
4100125	Mounting screws for pressure switch and bracket	1
4110211	Pressure switch mounting bracket (optional)	1

4160104 4 FLEX VENT TO 5 BREECH ADAPTOR ASSEMBLY FOR NMP

Part Number	Description	Number
2050029	Appliance Breech-pipe Adaptor (NM5AB)	1
2050032	5" Band clamp (NM5B)	1
2050033	SVS breech adaptor (NM4F5B)	1
2080075	Viton O-ring #246V	1
2190078	Plug, 1/8", brass	1
2190079	Locknut, 1/8", brass (if used)	1
2190080	Street T fitting complete, 1/8", brass (if used)	1

SVS SYSTEM FOR NBR BOILER

Part Number	Description	Terminal Assembly Part Number	
		5240004	5240014
		Number	
4160105	Standard Terminal Package - see page 17	1	
4160117	Extended Terminal Package - see page 17		1
4160103	SVS Adaptor Kit for NBR see below	1	1
2050034	Oil Flex Vent Pipe, 4" x 10' (NM4FV10)		
2050023	Oil Flex Vent Pipe, 4" x 15' (NM4FV15)		
2050050	Oil Flex Vent Pipe, 4" x 20' (NM4FV20)		
2050027	Oil Flex Vent Pipe, 4" x 25' (NM4FV25)		
2050035	Air Duct, 5" x 10' (NM5AD10)		
2050024	Air Duct, 5" x 15' (NM5AD15)		
2050051	Air Duct, 5" x 20' (NM5AD20)		
2050028	Air Duct, 5" x 25' (NM5AD25)		

4160103 SVS ADAPTOR KIT FOR NBR

Part Number	Description	Number
3070009	6' aluminum adhesive tape (air duct)	1
2080072	85gr tube of 600°F silicone sealant (flex vent)	1
2050025	5" x 3" galvanized adaptor (air duct to Riello Burner) (NM5A3)	1
2050026	5" x 4" galvanized adaptor (air duct to terminal) (NM5A4)	1
4160104	4 flex vent to 5 breech adaptor with pressure switch connection see below	1
2080074	2-3/4" x 1/8" O-ring, viton (flex vent terminal seal)	1
2050031	3" band clamp (flex vent terminal) (NM3T)	1
2050030	4" flex vent to 3" terminal adaptor (flex vent) (NM4F3T)	1
2010062	White Rodgers strap-on high limit 1127-2 or equivalent	1
4050202	36" cable assembly for high limit (black/black/green)	1
4100125	Mounting screws for pressure switch and bracket	1
4110211	Pressure switch mounting bracket (required for boilers)	1

4160104 4 FLEX VENT TO 5 BREECH ADAPTOR ASSEMBLY FOR NBR

Part Number	Description	Number
2050029	Appliance Breech-pipe Adaptor (NM5AB)	1
2050032	5" Band clamp (NM5B)	1
2050033	SVS breech adaptor (NM4F5B)	1
2080075	Viton O-ring #246V	1
2190078	Plug, 1/8", brass	1
2190079	Locknut, 1/8", brass (if used)	1
2190080	Street T fitting complete, 1/8", brass (if used)	1

TERMINAL AND CONTROL KIT PARTS

TERMINAL PACKAGE

Part Number	Description	Terminal Package	
		4160105	4160117
4160159	Terminal, Standard SVS	1	
4160116	Terminal, Extended SVS		1
4100123	Terminal parts (mounting screws) bag	1	1
3100526	Terminal inside (big) wall flange	1	1
4160107	SVS terminal adaptor heat shield assembly, c/w securing screws	1	1
4160102	SVS (pressure switch) control kit see below	1	1
2210192	Installation manual	1	1

4160102 SVS (PRESSURE SWITCH) CONTROL KIT

Part Number	Description	Number
4110210	Beckett/Carlin green air tap collar, 4"	1
4110200	Riello BF green air tap collar, 3"	1
4100124	Switch control kit wire nuts and mounting screws (bag)	1
3100533	6' x 3/16" copper pressure switch tube	2
4160160	Pressure switch assembly complete	1
4050203	4 wire boiler aquastat cable – not used on furnaces (grey/black/white/green)	1
4050204	3 wire pressure switch cable (red/red/green)	1
4050207	4 wire burner cable with long burner connections (grey/black/white/green)	1

TERMINAL SPARE PARTS

Part Number	Description	
4160142	Terminal screen assembly. (6 screws 2120007 required)	
3100502	Cover for air opening in terminal (main box). (2 screws 2120007 required)	
2080069	Gasket for 3100502 cover	
4160143	Air box assembly (mounts to terminal). (2 screws 2120007 required)	
2080069	Gasket for 4160143 air box	
3100515	Cover for opening in air box. (4 screws 2120007 required)	
2080068	Gasket for 310515 cover	
4060277	Air adaptor (duct adaptor) for air box. (4 screws 2120007 required)	
2080068	Gasket for 4060277 adaptor	
2120007	Screw, #8 x 5/8" SS pan head php self threading	

OPTIONAL TERMINAL AND BREECH FLEX VENT PIPE ELBOW KITS

Appliance	Terminal Elbow Part Number	Breech Elbow Part Number
LFR, oil fired furnace	5010139 (NM3LT)	5010140 (NM4LB)
NBR boiler, NV2 and NMP furnaces	5010139 (NM3LT)	5010141 (NM5LB)
NV3 oil fired furnace	5010139 (NM3LT)	-

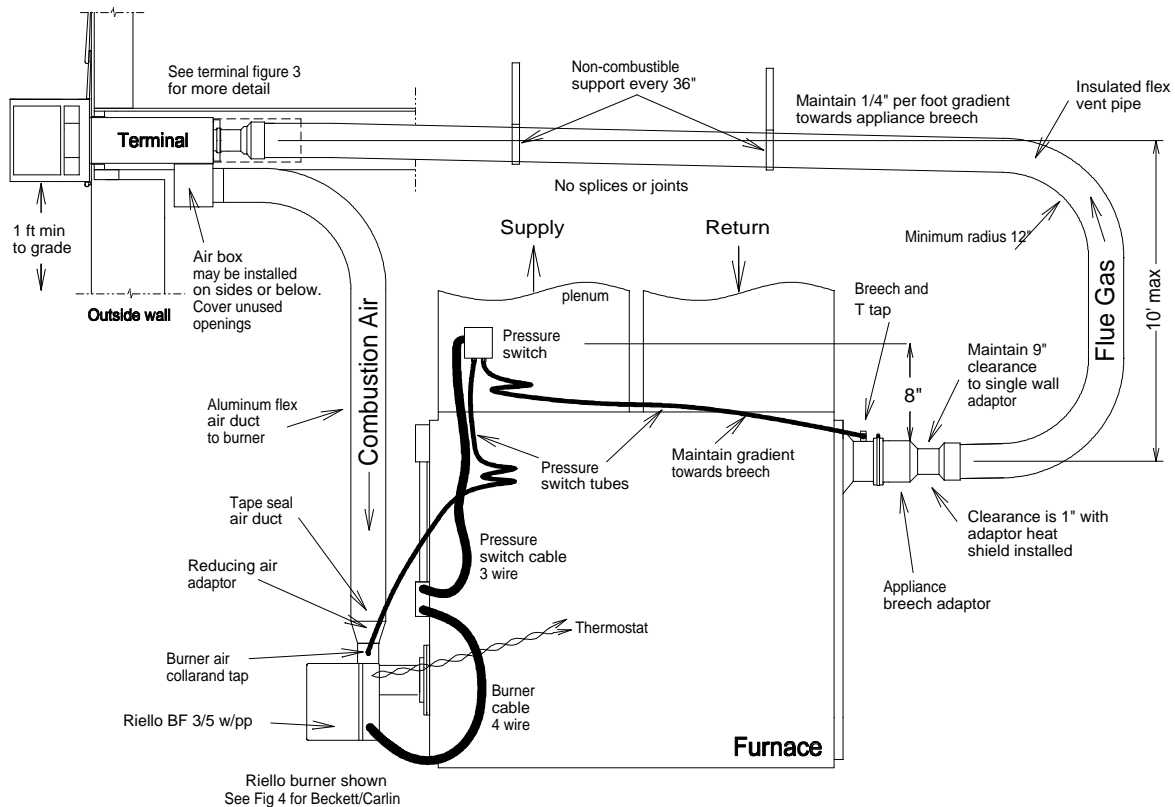


FIG. 1, FURNACE INSTALLATION

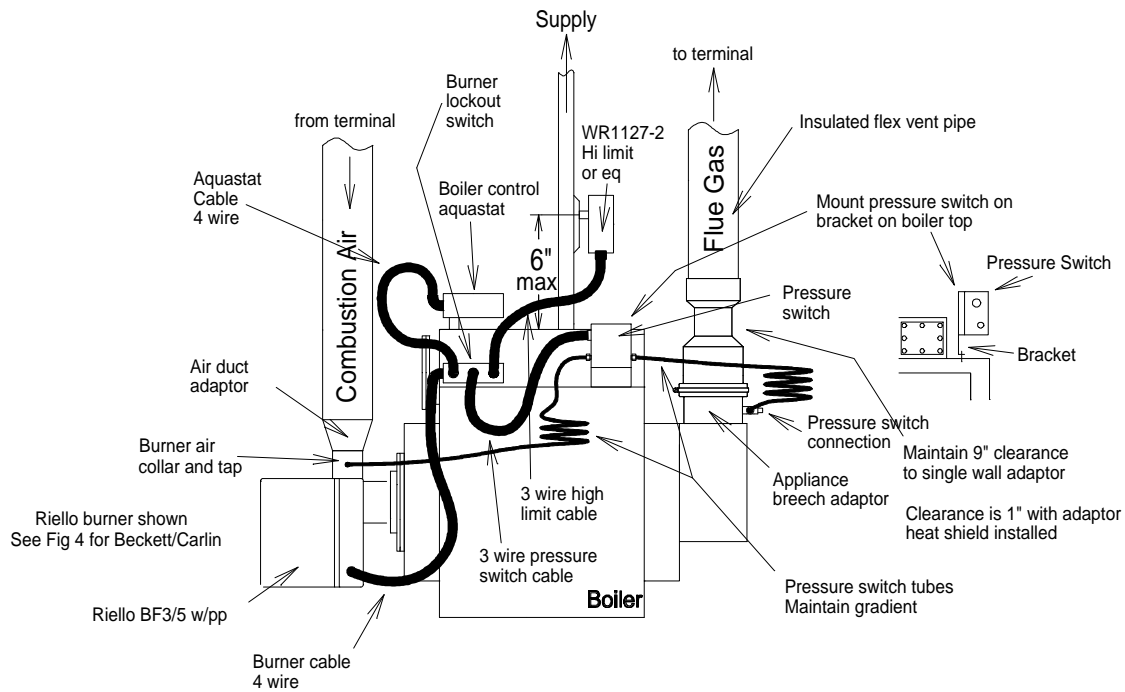


FIG. 2, BOILER INSTALLATION

FIG. 3, TERMINAL

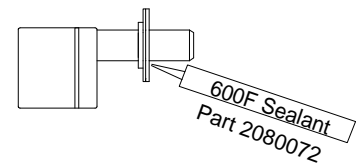
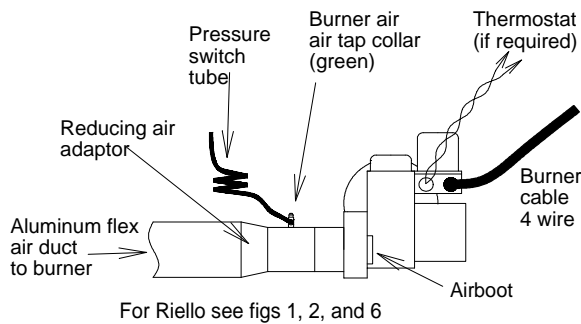
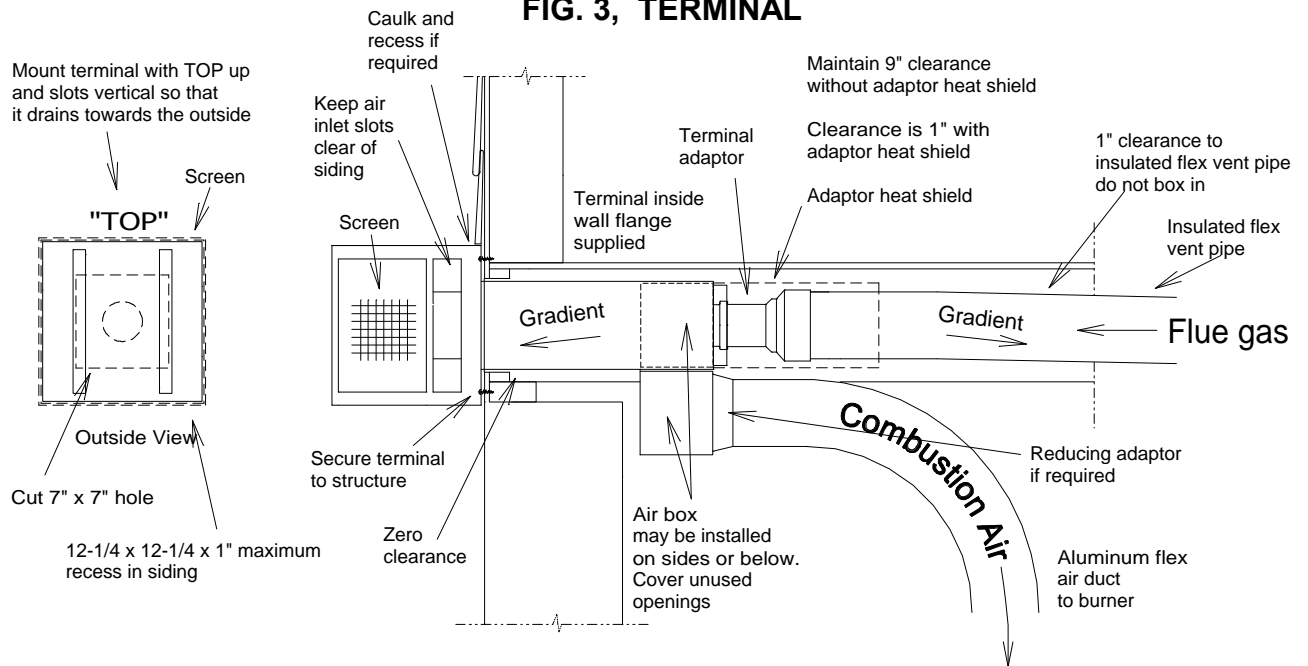


FIG. 5, BURNER FLANGE SEAL

FIG. 4, BECKETT OR CARLIN WITH POST PURGE

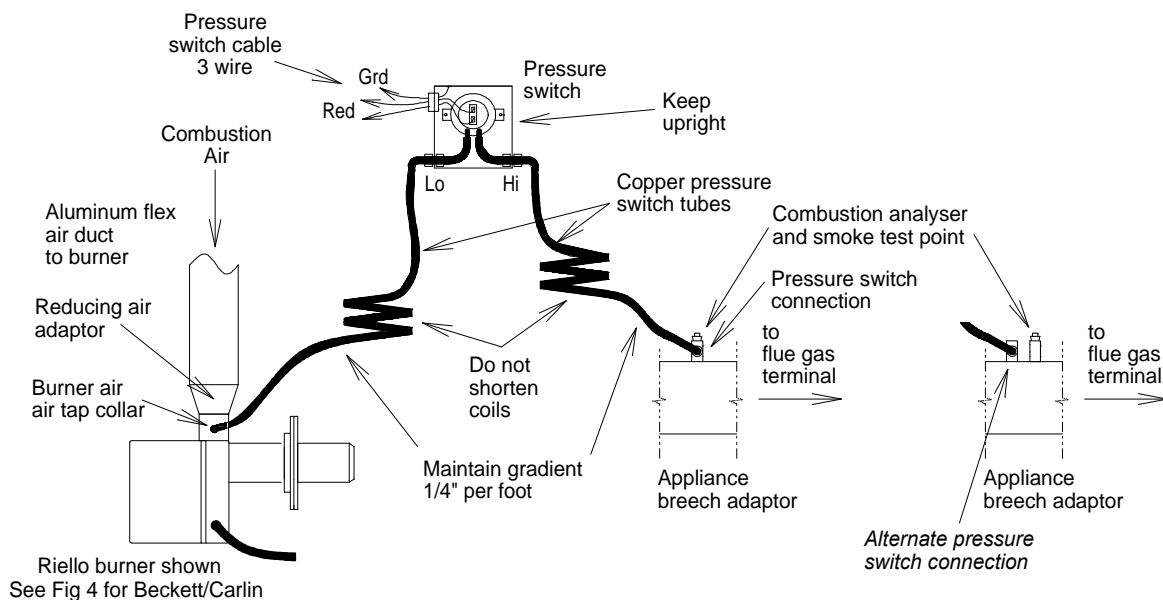


FIG. 6, PRESSURE SWITCH LAYOUT

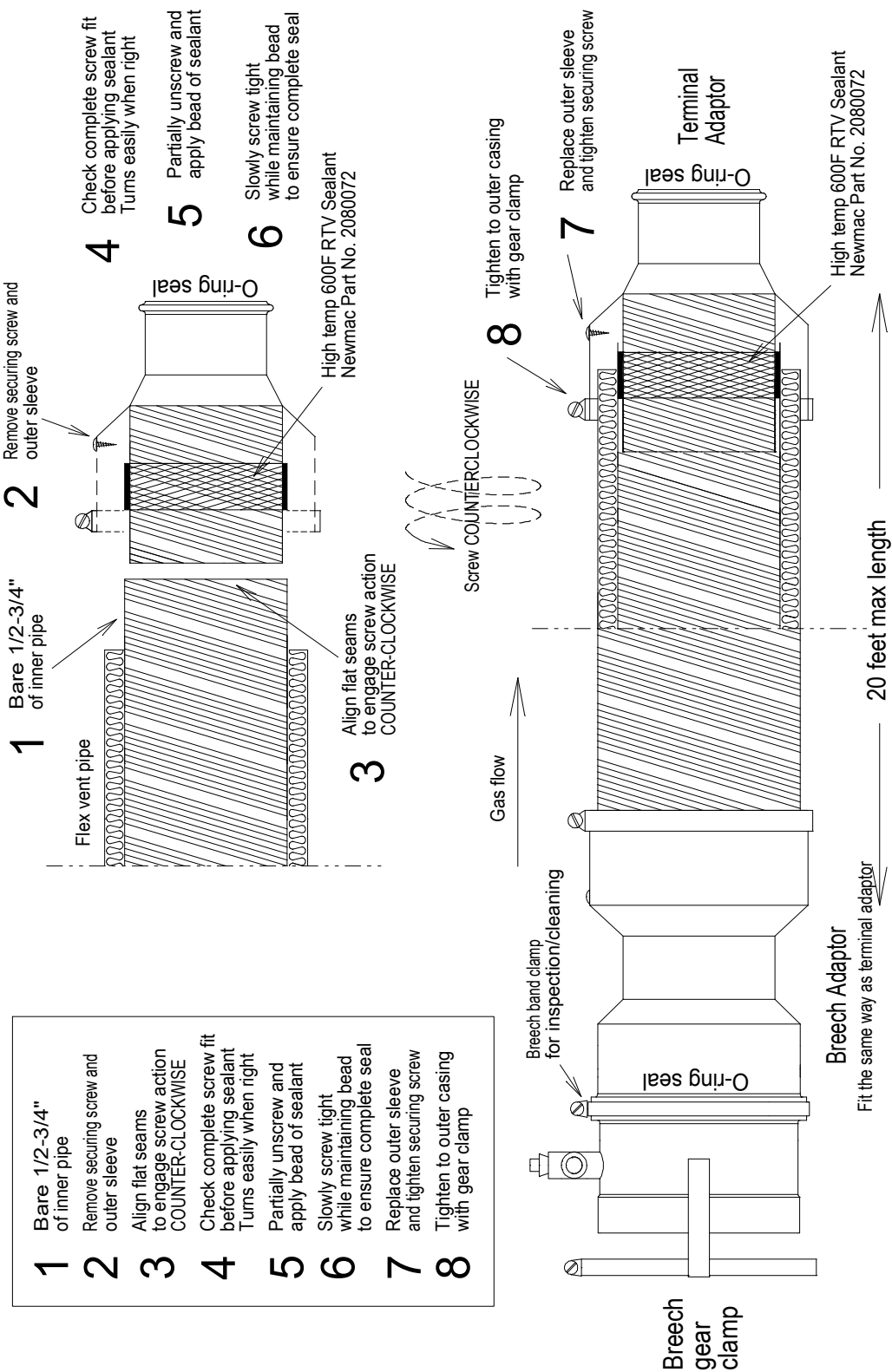


FIG 7, FLEX VENT ADAPTOR ASSEMBLY

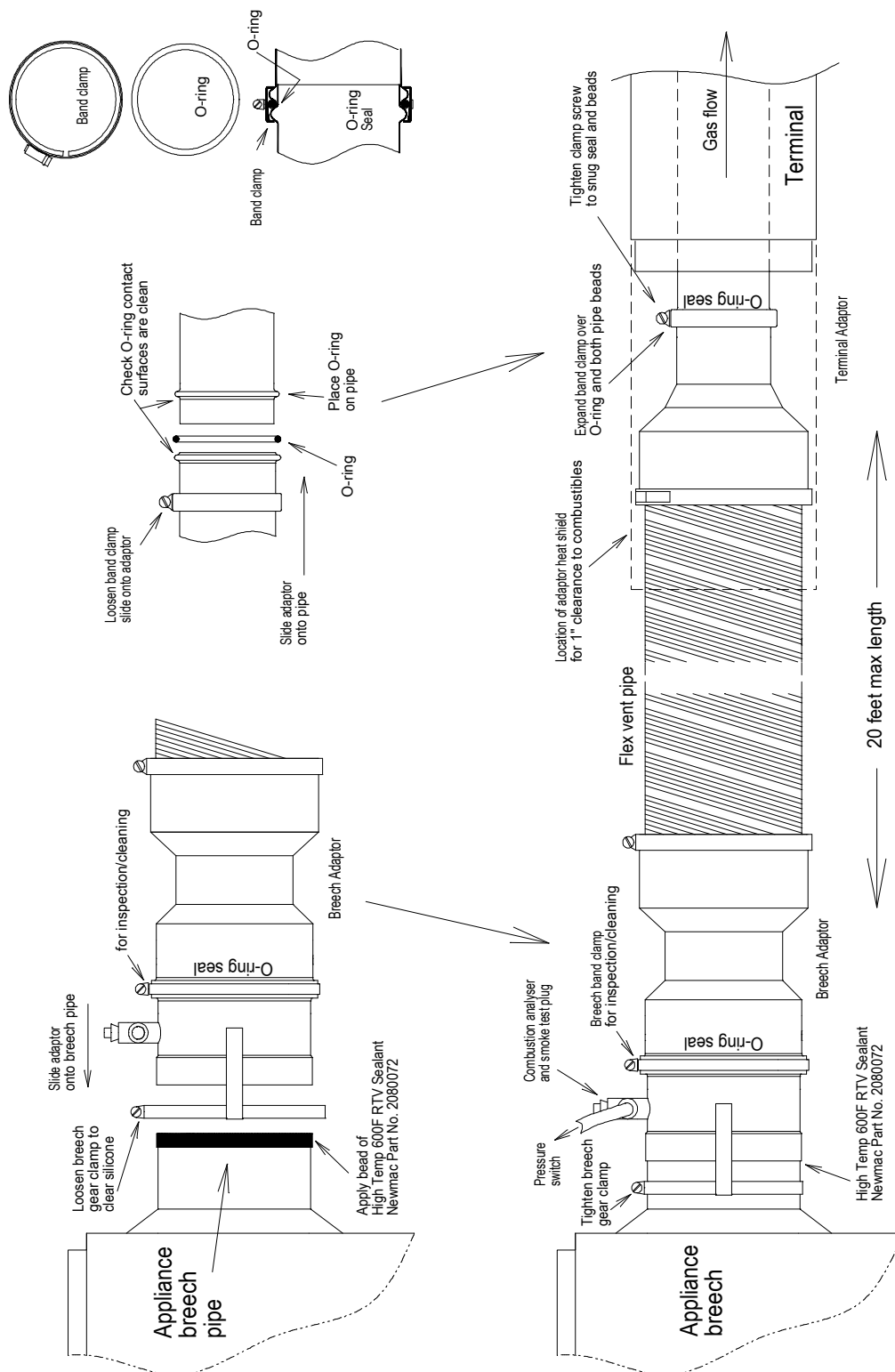


FIG. 8, INSTALLED FLEX VENT ASSEMBLY

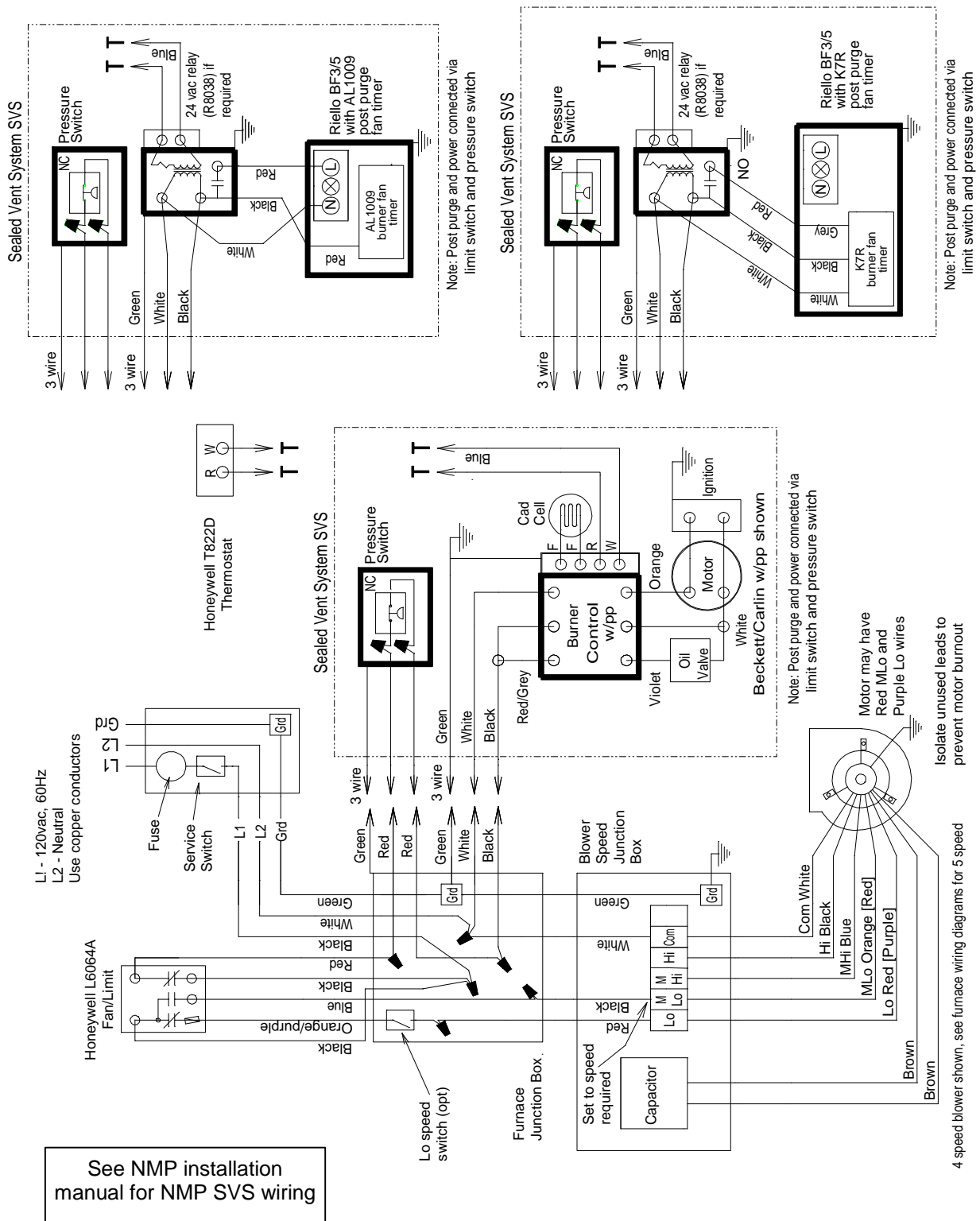
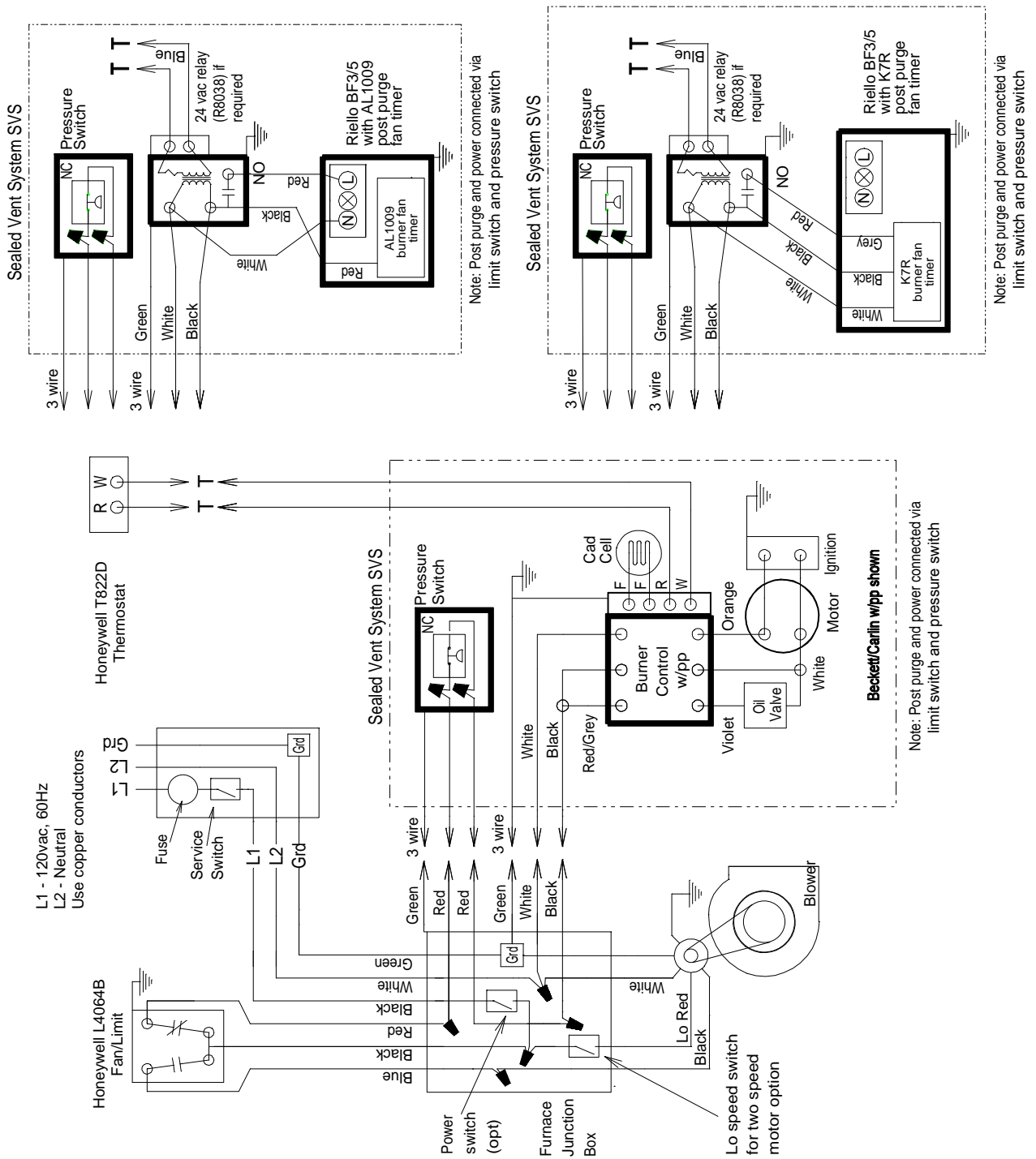


FIG. 9, SVS WIRING DIRECT DRIVE



See NMP installation manual for NMP SVS wiring

FIG. 10, SVS WIRING - BELT DRIVE

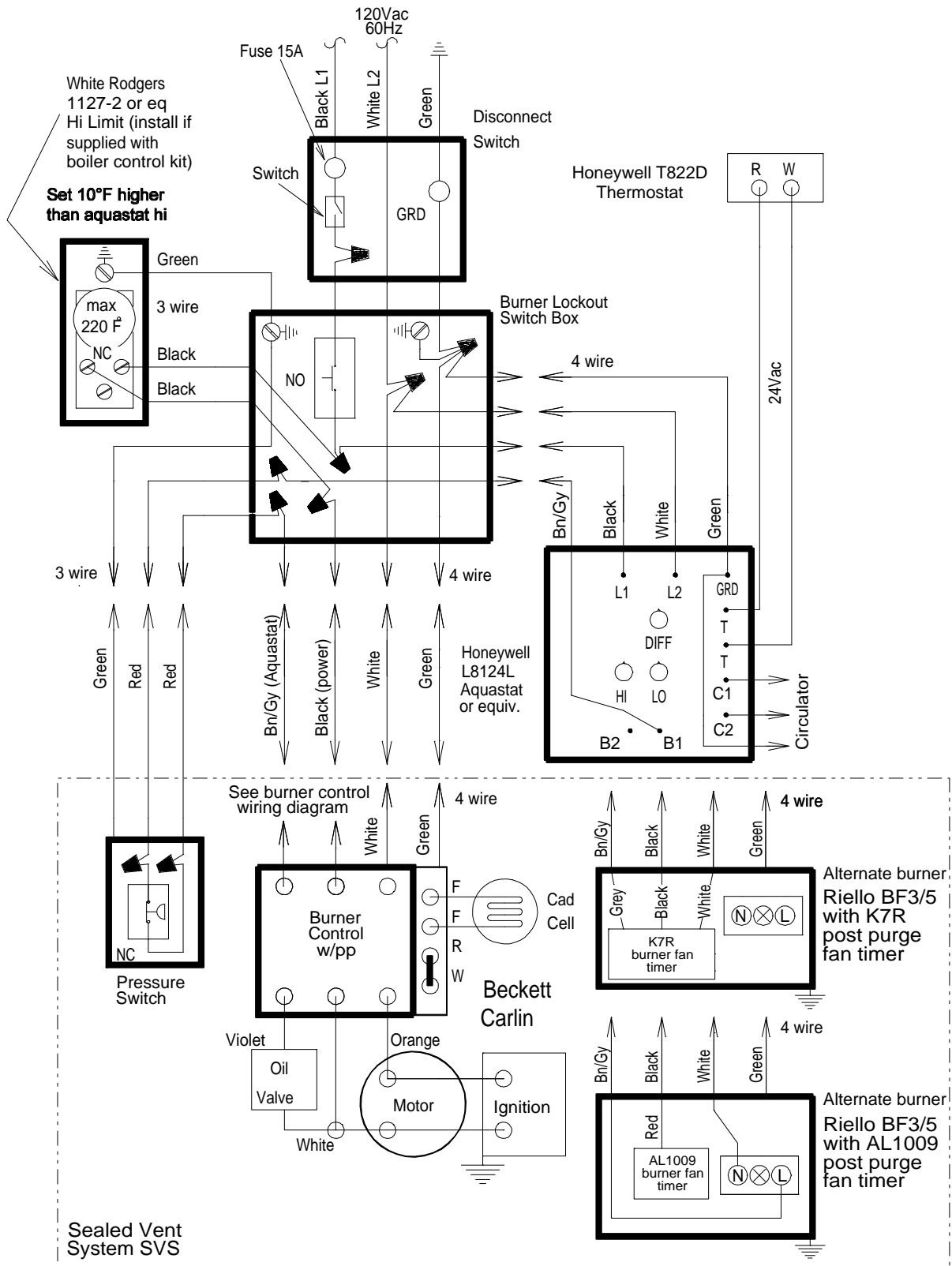


FIG 11, SVS WIRING BOILER

